APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,190	01/30/2004	William Setter	119508-00102	4584

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EXAMINER
CHUKWURAH, NATHANIEL C

ART UNIT	PAPER NUMBER
3721	

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/767,190	SETTER ET AL.
	Examiner	**Art Unit**	
	Nathaniel C. Chukwurah	3721	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _30 January 2004_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-26_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-26_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _30 January 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _7/29/2004_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites "the step of converting the signal into an equation" in lines 1-2 which lacks proper antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-13 and 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Giardino et al. (US 63,11786).

With regard to claim 1, Giardino et al. discloses a method comprising the step of: applying a toque pulse to a fastener (col. 3, lines 10-13), detecting a signal representing the time-amplitude waveform of the toque pulse (col. 3, lines 60-63), fitting an equation that approximates the time amplitude waveform (col. 4, lines 7-15), processing the equation to determine the torque being applied to the fastener (col. 4, lines 16-49), comparing the torque to a

pre-set torque objective (col. 5, lines 29-38) and applying a second torque pulse to the fastener if

torque is less than pre-set torque objective.

With regard to claim 2, Giardino et al. shows an equation that includes positive

amplitude; wherein as I is defined as product of force and time (see col. 4, lines 7-14), when an

impact is detected, tf is set to be impact plus some number of clock counts which is equivalent as

in claimed.

With regard to claim 3, Giardino et al. shows a linear equation $T=d(Ir)/dt$, which detects

impulse which measures torque at different point in time over a period of time and provide the

desired torque.

With regard to claim 7, although claim 1 does not recites the step of converting signal

into an equation, Giardino et al., as best understood, shows the steps of converting the signal into

an equation representing the torque pulse from two parameters (impact number and time

duration) that describes torque pulses from a set of parameters (col. 4, lines 29-62).

With regard to claim 8, Giardino et al. shows a signal producing magneto-elastic torque

transducer (37 magneto-elastic ring) coupled to the shaft (18) and induction coil (32 coupling)

proximate shaft (front end of the shaft).

With regard to claim 9, Giardino et al. shows an impact tool (10).

With regard to claim 10, Giardino et al. shows a wrench (10).

With regard to claim 11, Giardino et al. discloses a method comprising the steps of:

applying a plurality of toque pulse to a fastener (col. 3, lines 10-13), detecting a signal

representing the time-amplitude waveform of the toque pulse (col. 3, lines 60-63), converting the

signals into mathematical expression (col. 4, lines 10-28), fitting an equation that approximates

the time amplitude waveform (col. 4, lines 7-15), processing the equation to determine the torque

being applied to the fastener (col. 4, lines 16-49), and the data gathered and/or calculated is

displayed and /or written to data storge, as desired as in step 20 and turning off the green light

(col. 6, lines 17-18 and 20), which is equivalent of terminating the fastener tightening sequence

as claimed.

With regard to 12, Giardino et al. shows an equation that includes positive amplitude;

wherein as I is defined as product of force and time (see col. 4, lines 7-14), when an impact is

detected, tf is set to be impact plus some number of clock counts which is equivalent as in

claimed

With regard to claim 13, Giardino et al. shows a linear equation $T=d(Ir)/dt$, which

detects impulse which measures torque at different point in time over a period of time and

provide the desired torque.

With regard to claim 17, Giardino et al. shows the steps of converting the signal into an

equation representing the torque pulses from two parameters (impact number and time duration)

that described torque pulses from a set of parameters (col. 4, lines 29-62).

With regard to claim 18, Giardino et al. shows a signal producing magneto-elastic torque

transducer (37 magneto-elastic ring) and induction coil (32 coupling) proximate shaft (front end

of the shaft).

With regard to claim 19, Giardino et al. shows a torque impact tool (10).

With regard to claim 20, Giardino et al. shows a wrench (10).

With regard to claim 21, Giardino et al. discloses an apparatus comprising an impact tool

(10), a shaft (18) operatively connected to the impact tool, a torque transducer (37) coupled to

the tool, a sensor (30) proximate the impact tool, a controller (50) enabling the impact tool to

apply one or more pulses to the shaft (18), and which is capable of receiving waveform signals

from sensor (30), monitors and conditions the signals, selects an equation that represents the

signals, processes the equation to obtain torque on the fastener and disables the impact tool.

With regard to claim 22, Giardino et al. shows a pneumatic torque wrench (10).

With regard to claim 23, Giardino et al. shows linear equation; $I=\int Fdt$; $T=d(Ir)/dt$.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-6, 14-16 and 24-26 rejected under 35 U.S.C. 103(a) as being unpatentable over

Giardino et al.

With regard to claims 4, 5, 14, 15, 24 and 25, although Giardino et al. does not expressly

disclose an equation showing a correlation coefficient, it would have been obvious to one of

ordinary skill in the art at the time of the invention to provide the data processing unit (50) of

Giardino et al. with the capability of determining correlation coefficient through an equation

since the apparatus of Giardino et al. anticipates the claimed structure and method for

determining torque applied to a fastener.

With regard to claim 6, 16 and 26 Giardino et al does not expressly disclose a non-linear

equation for torque pulses, however, it would have been obvious to one of ordinary skill in the

art at the time of the invention to provide the data processing unit (50) of Giardino et al. with the

capability of representing the torque pulses with non-linear equation since the apparatus of

Giardino et al. anticipates the claimed structure and method for determining torque applied to a

fastener.

Conclusion

Refer to attachment for notice of references cited and recommended for consideration

based on their disclosure of limitations of the claimed invention.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nathaniel C. Chukwurah whose telephone number is (571) 272-

4457. The examiner can normally be reached on M-F 6:00AM-2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Rinaldi Rada can be reached on (571) 272-4467. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NC

June 6, 2005.

LOUIS K. HUYNH
PRIMARY EXAMINER